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The Committee on a paper by Dr. J. Aitken Meigs, entitled "Relation of Atomic Heat to Crystalline Form," reported in favor of publication in the Journal.

On leave granted, Dr. Leidy presented for publication in the Proceedings a paper entitled "Indications of twelve species of Fossil Fishes," which was referred to the following Committee: Mr. Cassin, Dr. Le Conte and Dr. Hallowell.

On leave granted, Dr. Carson presented a paper, intended for publication in the Journal, entitled "Descriptions of a new species of *Carica*, by José del Solar, of Lima, Peru." Referred to Dr. Carson, Dr. Bridges and Major Le Conte.

ELECTION.

The Rev. Henry S. Spackman, Mr. Stacy B. Barcroft, Dr. Richard Clements, and Dr. Henry Tiedemann, of Philadelphia, were elected *Members*.

August 28th.

Vice President BRIDGES in the Chair.

The Committee to whom was referred Dr. Leidy's paper, entitled "Indications of twelve species of Fossil Fishes," reported in favor of publication in the Proceedings.

Indications of Twelve Species of Fossil Fishes.

By JOSEPH LEIDY, M. D.

1. *MYLIOBATES SERRATUS*. Based upon a specimen consisting of four median dental plates, with parts of two others and the first row on each side of lateral dental plates. The triturating surface of the specimen is quite level, except that it is slightly depressed along the median line, and slopes off in a concave manner. The median dental plates are united by sutures slightly convex forward, and distinctly serrated at their outer part. The first row of lateral dental plates are nearly hexagons, and they are connected with each other and with the median plates by distinctly serrated suture.

The attaching surface of the specimens forms two planes inclining to a median, convex angle.

Breadth of median plates $10\frac{1}{2}$ lines, width antero-posteriorly $1\frac{3}{4}$ lines.

Locality. Discovered by Dr. C. H. Budd, in the Green Sand of Burlington Co., New Jersey.

Remarks. The specimen closely resembles a corresponding one characterized by Agassiz, as *Myliobates suturalis*.

2. *MYLIOBATES RUGOSUS*. Based upon a specimen, consisting of four median dental plates, indicating a large species of the genus, though not so large as the *Myliobates Holmesii*, Gibbs, which, however, appears rather to be an *Aetobatis*, judging from Dr. Gibbs' figures,* of the same type as the *A. eximius*. The two latter might be considered as the representatives of a new genus, in which there exists a median row of dental plates, and a single row laterally of small tri-lateral plates. It would be intermediate to *Aetobatis* and the true *Myliobates*, and might be called *Mesobatis*. The triturating surface of the specimen of *Myliobates*

* Journ. Acad. Nat. Sc. 2d s. i. pl. 42, fig. 1.

rugosus is prominently convex and longitudinally wrinkled, especially at the extremities of the median dental plates. The latter are united by convex suture directed forward. The attaching surface of the specimen is flat.

Diameter of the median plates transversely 2 inches and 4 lines, antero-posteriorly $4\frac{1}{4}$ to $5\frac{1}{2}$ lines.

Locality. Discovered by Mr. Horner in the Marl of New Egypt, New Jersey. T. A. Conrad.

3. *MYLIOBATES OBESUS*. Based upon a pair of median dental plates of a species smaller than *M. rugosus*, and comparatively more convex in its sutures and its triturating surface.

The estimated transverse diameter of the median plates was about 16 lines, the antero-posterior diameter is $3\frac{1}{2}$ lines.

Locality. Discovered by Dr. Charles H. Budd, in the Green sand of Burlington Co., New Jersey.

4. *ZYGOMATES DUBIUS*. Based upon numerous specimens of isolated dental plates. The median dental plates are comparatively wide compared with their transverse breadth, their triturating surface is convex, and the attaching surface concave and parallel with the former. The lateral dental plates of the first row present a corresponding width and breadth to the median plates. Their triturating surface is convex and slopes off laterally, and their attaching surface is straight.

Transverse diameter of median plates 6 to 16 lines, antero-posterior 2 to $4\frac{1}{2}$ lines, thickness $1\frac{1}{2}$ to 3 lines. Transverse diameter of lateral plates of the first row up to 13 lines, antero-posterior up to $4\frac{1}{2}$ lines.

Locality. Discovered by Capt. Bowman, U. S. A., in the sands of Ashley river, South Carolina. Probably washed from eocene beds.

5. *AETOBATIS PERSPICUUS*. Based upon a specimen consisting of one half of an isolated dental plate of the upper jaw. Although the fragment is a very small one, it is very characteristic. The triturating surface is smooth, excepting, however, the accidental scratches; and it is perfectly level antero-posteriorly, and is slightly convex transversely; and the attaching surface is parallel with the former. The anterior and posterior margins form the segment of a circle bent at a very obtuse angle. The outer extremity of the dental plate is abruptly truncated, and the enamel turns down laterally to the extent of a line. The antero-external angle forms a projecting heel, and the corresponding posterior angle presents a concave fossa for the reception of the contiguous heel of the posterior dental plate.

Estimated breadth of the upper dental series $2\frac{1}{2}$ inches, antero-posterior width of the dental plate at its middle 4 lines, thickness 4 lines.

Locality. Discovered by Dr. J. L. Burr in the Green Sand of New Jersey.

6. *AETOBATIS EXIMUS*. Based upon a specimen consisting of one half of four median dental plates, with a corresponding row of lateral plates. The median plates are perfectly level on the triturating surface, except at their outer extremity, where they are abruptly rounded off. The sutures are slightly bow formed, and of the two sides of the outer extremities that anterior is the longest. The species has but a single row of lateral plates, which are convex at their outer border, and are angular within to join two contiguous median plates.

Estimated transverse diameter of the dental series, including the small lateral plates 23 lines, antero-posterior diameter of the median plates $3\frac{1}{4}$ lines.

Locality. Discovered by Capt. Bowman, U. S. A., in the sands of Ashley river, S. C. Probably washed from Eocene beds.

7. *ODAX CAROLINENSIS*. Based upon numerous specimens, consisting of portions of the jaws and pharyngeal bones, with teeth. External extremities of the maxillary denticles very distinct from one another, convex, six in number in a vertical row of $5\frac{1}{2}$ lines. Pharyngeal bones triangular, with two short equal sides, and the long side measuring from 6 to 8 lines, densely furnished with teeth resembling in form the corresponding ones of *Pogonias*.

Locality. Discovered by Capt. Bowman, U. S. A., in the sands of Ashley river, South Carolina.

8. *POGONIAS*. Numerous isolated teeth of this genus, of the same form and size as those of the recent *Pogonias chromis*, were discovered by Capt. Bowman with the preceding in the sands of Ashley river.

9. *SPHYRÆNA MAJOR*. Based upon numerous specimens (more than a hundred) of isolated crowns of teeth, the smallest of which measures $3\frac{1}{2}$ lines long and $2\frac{1}{2}$ lines wide at the base, and the longest $8\frac{1}{2}$ lines long by $4\frac{1}{2}$ lines wide at the base.

Locality. Discovered by Capt. Bowman in the sands of Ashley river, South Carolina.

10. *ENCHODUS FEROX*. *Sphyræna*, Morton: Syn. Org. Rem. Cret. Group of the U. S., Pl. xii. fig. 1. Based upon specimens in the Cabinet of the Academy, consisting of fragments of the jaws with teeth, which have usually been referred to the genus *Sphyræna*, but to this they do not belong, as the teeth are not inserted in sockets, but are implanted by expanding roots co-ossified with the surface of the jaws. The specimens consist of an isolated anterior tooth (represented in Morton's Pl. xii. fig. 1), of a portion of the left intermaxillary bone with the anterior tooth, which measures $1\frac{3}{4}$ inches in length from its base of attachment; a fragment of the right intermaxillary bone, with the roots of two large teeth, and a row of small, uncompressed, conical teeth at the outer margin; and a fragment of a palatal bone, with one large conical tooth having trenchant borders, and the roots of two other teeth.

Locality. Discovered in the Green Sand near Mount Holly, New Jersey. The teeth of this species are relatively narrower compared with their length, than in *Enchodus Faujasii*, Ag., from the Mæstricht beds.

11. *XIPHIAS ANTIQVUS*. Based upon a specimen consisting of ten and a half inches of the extremity of the prolonged maxillary bones.

The posterior broken extremity of the specimen is transversely oval in section, and measures 2 inches in its long diameter and 1 inch in its short diameter. Anteriorly the specimen becomes more cylindrical, and at the anterior broken end it measures 5 lines in diameter.

Locality. Discovered by Dr. Chas. H. Budd, in the Green Sand of Burlington Co., New Jersey.

12. *DIODON VETUS*. Based upon numerous specimens consisting of water-rolled jaws with the alveolar and oral teeth.

The internal or oral teeth consist of a conjoined pair of piles, of from 6 to 10 trilateral laminae, measuring from $3\frac{1}{2}$ to $4\frac{1}{2}$ lines wide. The outer or alveolar teeth are composed of small lamellar denticles, of which the margin of 4 or 5 may be counted anteriorly in the space of a line.

Locality. Discovered by Capt. Bowman, U. S. A., in the sands of Ashley river. S. C.

The Corresponding Secretary read his Report for the last two months, which was adopted.

ELECTION.

Senor José del Solar, of Lima, Peru, was elected a *Correspondent*; and Mr. C. F. Hagedorn, of Philadelphia, was elected a *Member*.